FACT SHEET

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RUSSIAN-AMERICAN OBSERVATION SATELLITE

PROGRAM OVERVIEW

Since 1992, American and Russian scientists have been working to define a new space-based stereo viewing research project called RAMOS. The goal of RAMOS is to build confidence between the United States and the Russian Federation by cooperating on a defense research and development program. BMDO sponsors RAMOS through the U.S. team led by the Space Dynamics Laboratory of Utah State University supported by Visidyne Corp. of Burlington, MA and Aerospace Corp. of Los Angeles, CA. The Russian team is managed by the State Armaments Company Rosvoorouzhenie. The lead scientific organization is the design bureau, Ts NPO Kometa, supported by AstroPhysica.

RAMOS has both defense and environmental objectives. The defense objectives include measuring the mid-to-long wave infrared Earth background radiance and structure, measuring the polarization of short wave infrared sun glint from high altitude clouds, and using stereo observations to detect and track moving objects against the Earth background. The environmental objectives include measurements supporting hurricane prediction and meteorological forecasting, observing environmental disasters, and detecting and monitoring environmental degradation.

The RAMOS program will design, build, launch, and operate two satellites that will provide stereoscopic observations of the earth's atmosphere and ballistic missile launches in short wavelength and mid-to-long wavelength infrared bands. Preliminary experiments designed to support program definition occurred between 1995 and 1999 using existing U.S. and Russian space and aircraft platforms to collect imagery. The U.S. Midcourse Space Experiment (MSX) and the Miniature Sensor Technology Integration (MSTI-3) satellites were used to collect nearly simultaneous stereo imagery with the Russian RESURS 01 satellite. Additionally, joint experiments using U.S. and Russian prototype sensors were flown aboard the U.S. Flying Infrared Signatures Technology Aircraft (FISTA), demonstrating our ability to jointly plan, execute, and analyze RAMOS type experiments.

The RAMOS team entered the Preliminary Design phase of the program in the Fall of 2000. The RAMOS system consists of two co-orbital satellites each with a sensor suite consisting of an infrared imaging radiometer, a visible wide-angle photometer, and a visible camera. Additionally one satellite will carry a short waveband infrared polarimeter and the other an ultraviolet photometer. Current plans call for Russia to provide the launch capability, satellite platforms, and the ground processing and control equipment while the U.S. will provide the infrared sensors. The satellites are scheduled for launch in FY04 with a nominal two-year on-orbit life expectancy.

RAMOS Schedule

PHASE I (FY93-99)

1. **Program Definition**
2. **Plan and conduct measurements using the Midcourse Space Experiment (MSX), the Miniature Sensor Technology Integration (MSTI), and Russian RESURS 01 satellites.**
3. **Build and test proof-of-concept instruments aboard the Flying Infrared Signatures Technology Aircraft.**

PHASE II (FY99-07)

1. **Jointly design, build and launch satellites for stereo observation and tracking experiments.**
2. **Jointly conduct experiments for the planned 2-5 year on-orbit lifetime of satellites.**
3. **Exchange and analyze the data collected.**

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